

Borehole

60-05-04

Log Event A

Borehole Information

Farm : <u>U</u>	Tank : <u>U-105</u>	Site Number : <u>299-W18-176</u>
N-Coord : <u>38,074</u>	W-Coord : <u>75,698</u>	TOC Elevation : <u>Unknown</u>
Water Level, ft :	Date Drilled : <u>9/30/1978</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>76</u>	

Cement Bottom, ft. : <u>18</u>	Cement Top, ft. : <u>0</u>
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Borehole Notes:

This borehole was completed with 6-in. nominal diameter steel casing to 76 ft. Grout was placed between the casing and formation from the ground surface to 18 ft. A drive barrel was lost in the bottom of the borehole at about 76 ft, and grout (about 4 gal) was placed on top of the drive barrel to about 72.5 ft. The borehole has apparently not been perforated.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>10/17/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>12.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>10/18/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>72.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>11.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

60-05-04

Log Event A

Analysis Information

Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787

Analysis Date : 5/1/1996

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated energy versus channel number recalibrations during processing of the data to maintain proper peak identification. A depth overlap, where data were collected on separate days at the same depth, occurred in this borehole at about 11 ft. The calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.25-in.-thick steel casing were applied during analysis.

Cs-137, processed U-238, and processed U-235 were the only man-made radionuclides identified in this borehole. The presence of Cs-137 was measured from the ground surface to about 19 ft. The maximum Cs-137 concentration was about 20 pCi/g. The concentrations from 0 to 18 ft should be considered qualitative, because corrections are not made for grout that is present in the borehole.

Processed U-238 and U-235 are indicated at concentrations of up to about 300 and 15 pCi/g, respectively. Processed U-238 was measured continuously from about 51 to 57 ft and discontinuously from 58 to 72 ft. Processed U-235 was identified at similar depth locations.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank U-105.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.